**KABARAK** **UNIVERSITY**

# UNIVERSITY EXAMINATIONS

## 2009/2010 ACADEMIC YEAR

## FOR THE DEGREE OF BACHELOR OF ECONOMICS AND MATHEMATICS

**COURSE CODE:** **ECON 210**

**COURSE TITLE: INTERMEDIATE MICRO ECONOMICS**

**STREAM:** **Y2S1**

**DAY:** **MONDAY**

**TIME:** **9:00 – 11:00 A.M.**

**DATE:** **22/03/2010**

# INSTRUCTIONS:

Answer question ONE and ANY OTHER TWO questions

# PLEASE TURNOVER

**QUESTION 1**

a) (i) Define an indifference curve. (2 marks)

(ii) Explain why consumers indifference curves do not intersect. (4 marks)

(iii) Explain clearly the assumptions on which indifference curves theory is based. (4 marks)

b) You are given the following production function $Q=L^{0.75} K^{0.25}$

**Required:**

(i)     Find the marginal product of labour. (1 mark)

(ii)    If the fixed quantity of capital in the short-run equals 10,00 units, what is the short- run production function? (3 marks)

(iii)   Show that marginal product of labour (MPL) is less than average product of labour in the short-run production function in (ii) above. (3 marks)

c) A consumer spends all her income on food and clothing's. At the current prices of food (pf) = sh.10 and price of clothing's (pc) = sh.5, she maximizes her utility by purchasing 20 units of food and 50 units of clothing's.

(i)     What is the consumer's income? (2 marks)

(ii)    What is the consumer's marginal rate of substitution of food for clothing at the equilibrium position? (3 marks)

d) "Substitution effect is the increase in quantity demanded resulting from a decrease in relative price after compensating the consumer for the change in real income" using a diagram explain this statement. (6 marks)

e) Identify the reasons why the marginal rate of substitution diminishes. ( 2 marks)

**QUESTION 2**

a) Briefly explain the following terms

(i)     Total physical product. (1 marks)

(ii)    Average physical product. (1 marks)

(iii)   Marginal physical product. (1 marks)

b) Show that in cob-Douglas production function the elasticity of factors substitutions is always equal to unity. (6 marks)

c) A biscuit producing company has the following variable cost function:
$TVC = 200Q - 9Q^2 + 0.25Q^3$.

If the company's fixed costs are equal to sh.150.

Determine:

i.     Total cost function. (1 mark)

ii.    Marginal cost function. (2 marks)

iii.   Average variable cost function. (2 marks)

iv.    Average total cost function. (2 marks)

v.     At what output levels average variable cost and marginal cost will be minimum.

**QUESTION 3**

a) Utility function of an individual is given by $U = f(x,y) = x^{3/4} y^{1/4}$. You are required to find out the optimal quantities of the two goods using langrangian method; if it is given that price of good X is shs. 6 per unit, price of good Y is shs. 3 per unit and income of the individual is equal to shs. 120. (10 marks)

b) Gives the following production function: $Q = 100k^{0.5} L^{0.5}$

Where **C = shs.1,200, w = 30 and r= 40**

**Required:**

i. Determine the quantity of labour and capital that the firm should use in order to maximize output. (6 marks)

ii. Determine the maximum output. (4 marks)

**QUESTION 4**

a) Explain the following concepts:
   i. Constant returns to scale. (5 marks)
   ii. Increasing returns to scale. ( 5 marks)
   iii. Decreasing returns to scale. (5 marks)

b) Explain why the concept of production function is useful in the analysis of firm's behaviors? (3 marks)

c) Distinguish between positive economics and welfare economics (2 marks)

**QUESTION 5**

   a) Identify the conditions under which price discrimination is possible.    (5 marks)

   b) A discriminating monopolist is selling a product in two separate markets in which demand functions are:

$$P_1 = 12 - Q_1$$
$$P_2 = 20 - Q_2$$

The monopolist total cost function is:

TC = 3+2Q

**Required:**

   i.   Determine the prices to be charged in the two markets and amount of output to be sold in each market so that profits are maximized.    (5 marks)

   ii.   Calculate the total profits to be made from the strategy of price discrimination.

               ( 4 marks)

   c) Explain and illustrate the conditions under which a firm under perfect competition may continue in production while making losses.    ( 6 marks)